NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION

LAKE TROPHIC DATA

MORPHOMETRIC:

LAKE	Tower Hill Pond	LAKE AREA (HA)	63.54
TOWN	Candia	MAXIMUM DEPTH (M)	13.6
COUNTY	Rockingham	MEAN DEPTH (M)	7.5
RIVER BASIN	Merrimack	VOLUME (M^3)	4,766,000
LATITUDE	43° 02'N	MUD SURFACE AREA (HA)	63.40
LONGITUDE	71° 22'W	RELATIVE DEPTH	1.5
ELEVATION (FT)	295	SHORE CONFIGURATION	1.70
SHORE LENGTH (M)	4800	AREAL WATER LOAD (M/YR)	15.49
WATERSHED AREA (HA)	2049.6	FLUSHING RATE (YR^{-1})	2.1
% WATERSHED PONDED	2.8%	PHOSPHORUS RETENTION COEFF.	0.50

BIOLOGICAL: DATE	20 FEB 1986	4 SEP 1985
DOM. PHYTOPLANKTON (% total) 1	sparse - no dominant	Peridinium (40%)
2		Mallomonas (20%)
NUMBER OF ALGAL GENERA	1	8
SPECIES DIVERSITY		2.41
CHLOROPHYLL a (µg/L)		10.72
DOM. ZOOPLANKTON (% total) 1	stalked ciliate (45%)	Kellicottia (35%)
2		Ciliate spp. (30%)
ROTIFERS/LITER	30	127
MICROCRUSTACEA/LITER	6	62
TOTAL ZOOPLANK. CNTS (cells/L)	78	265
VASCULAR PLANT ABUNDANCE		Common
DOMINANT VASCULAR PLANTS 1		Graminae
2		Myriophyllum
3		Lysimachia
SECCHI DISK TRANSPARENCY (M)		2.5
BOTTOM DISS. OXYGEN (mg/L)	6.8	0.4
SEDIMENT: % ORGANIC MATTER		

LAKE TYPE: A natural pond raised by damming.

SUMMER THERMAL STRATIFICATION: YES X NO ____ WEAK ____

IF YES, VOLUME OF HYPOLIMNION 1,140,000 (m^3) THERMOCLINE DEPTH 5.6 (m)

CHEMICAL: (mg/L unless indicated otherwise) LAKE: Tower Hill Pond

	WINTER		SUMMER		
DATE	20 FEB 1986		4 SEP 1985		
DEPTH (M)	3.0	6.0	2.0	6.0	11.0
pH (UNITS)	5.0	5.2	5.3	5.2	5.3
ALKALINITY (I. P.)	0.11	0.61	0.23	0.50	0.38
ALKALINITY (F.E.P.)	1.9	2.1	1.9	2.0	2.5
NITRITE+NITRATE NITROGEN			< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN			0.35		1.14
TOTAL PHOSPHORUS	0.015	0.013	0.009	0.008	0.030
SPEC. CONDUCT. (µMhos/cm)	46.3	50.0	42.3	44.1	43.8
APPARENT COLOR (UNITS)	80	90	30	60	*∿ 130
TRUE COLOR (440 nm)(UNITS)	NR	NR	37	55	82
MAGNESIUM			0.54		
CALCIUM			1.9		
SODIUM			3		
POTASSIUM			0.5		
CHLORIDE			6		6
TN : TP			39		38
INORG-N : INORG-P					
[Mg+Ca] : [Na+K]			0.70		
CALCITE SATURATION INDEX			6.4		

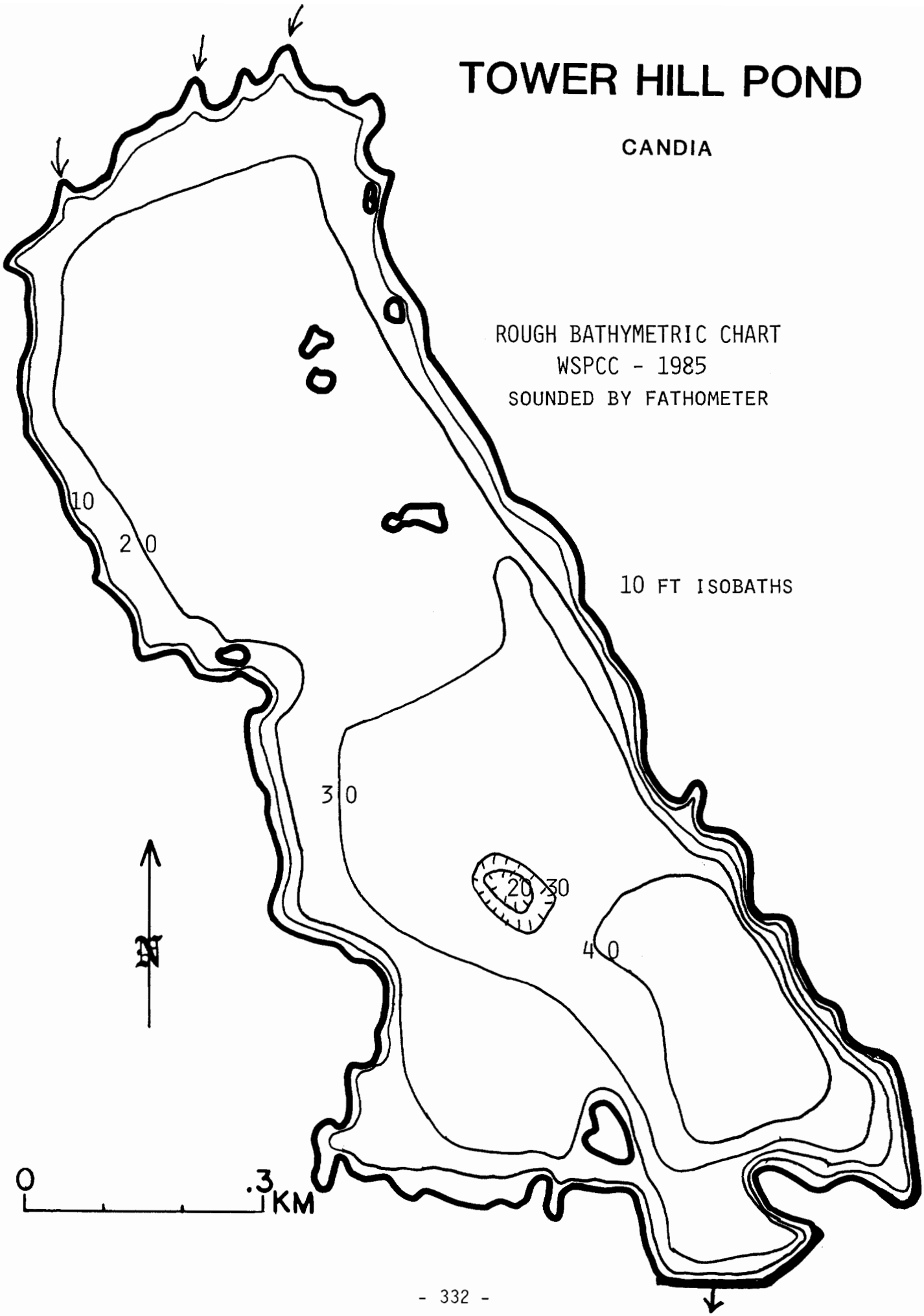
* = NOT DEFENSIBLE NR = NO RESULT

TROPHIC CLASSIFICATION: 1985

	D.O.	S.D.	PLANT ABUND.	CHL a	TOTAL PTS.	TROPHIC CLASS.
CLASSIFICATION POINTS:	6	2	2	3	13	Eutro.

COMMENTS:

1. Access to this pond is controlled by the Manchester Water Works.
2. Dark, tea-colored water.
3. The water level was down about 20 feet in the winter due to a frozen gate valve.


TOWER HILL POND
CANDIA
ROUGH BATHYMETRIC CHART
WSPCC - 1985
SOUNDED BY FATHOMETER
10 FT ISOBATHS
10
20
30
20
30
40
N
0
.3
KM

FIELD DATA SHEET

WATER BODY Tower Hill Pond TOWN Candia By WSPCC

DATE COLLECTED 4 September 1985 WEATHER Mostly cloudy

STATION	DEPTH (M)	TEMP. (°C)	*DISSOLVED OXYGEN	OXYGEN: % SATURATION			
DEEP SPOT	0.1	20.5	8.9	99%			
	1.0	20.0	8.9	99%			
	2.0	19.7	8.5	93%			
	3.0	19.4	8.0	89%			
	4.0	19.1	7.7	84%			
	5.0	18.3	6.0	65%			
	6.0	13.5	0.4	4%			
	7.0	11.9	0.8	7%			
	8.0	11.1	0.6	6%			
	9.0 / 10.0	10.5 / 10.0	0.6 / 0.4	5% / 4%		-	
	11.0	9.7	0.3	3%			
	12.0	9.3	0.3	3%			
	13.0	9.0	0.3	3%			
	13.5	9.0	0.4	4%			

COMMENTS:

SECCHI DISK (M) 2.5

BOTTOM DEPTH (M) 13.6

TIME 1230 hrs.

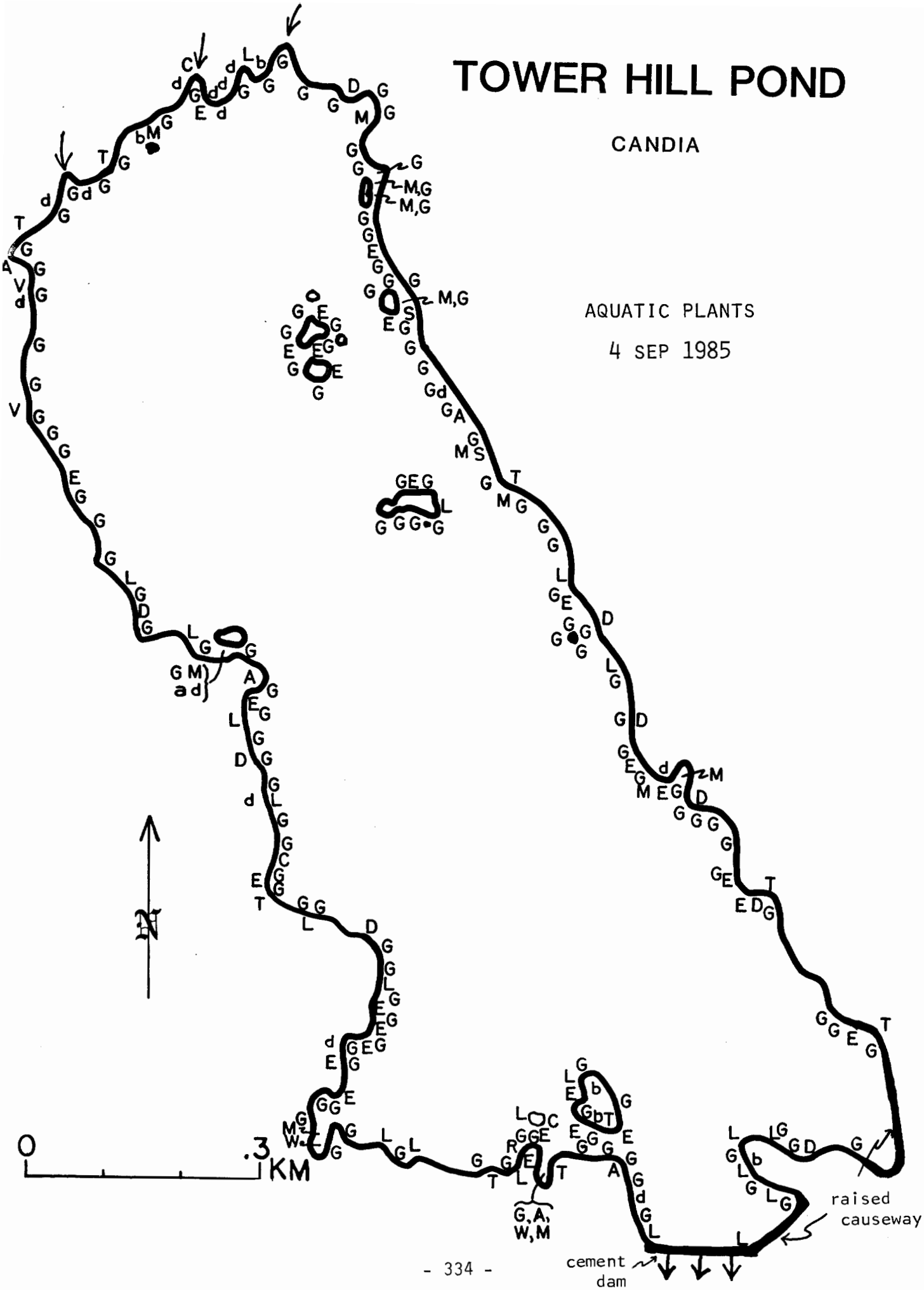
* Dissolved oxygen values in mg/L

TOWER HILL POND

CANDIA

AQUATIC PLANTS

4 SEP 1985



AQUATIC PLANT SURVEY

LAKE Tower Hill Pond TOWN Candia DATE 4 SEP 85 BY WSPCC

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
t	Callitriche	Water starwort	Sparse
G	Gramineae	Grass family	Common
R	Phragmites communis	Reed grass	Sparse
L	Lysimachia	Loosestrife	Common
y	Cyperus	Sedge	Sparse
E	Eleocharis	Spike rush	Common
C	Carex	Sedge	Sparse
T	Typha	Cattail	Scattered
A	Sagittaria	Arrowhead	Scattered
W	Potamogeton	Pondweed	Scattered
M	Myriophyllum humile	Water milfoil	Common
f	Zygnemataceae	Filamentous green algae	Abundant
b	Scirpus	Bulrush	Scattered
D	Decodon verticillatus	Swamp Loosestrife	Scattered
d	Dulichium arundinaceum	Three-way sedge	Scattered
S	Sparganium	Bur reed	Sparse
V	Scirpus validus	Softstem bulrush	Sparse
a	Peltandra virginica	Arrow arum	Sparse

OVERALL ABUNDANCE Common

GENERAL OBSERVATIONS:

1. The most common plants were shallow water emergent type. Bottom growths may have been more abundant than indicated, but, because of the dark water and size of the area to be surveyed, were not observed.
2. Grasses, spike rush, and Lysimachia were abundant along most of the shoreline, but did not extend out into the water very far so did not receive an abundant rating.
3. Filamentous algae was abundant along most of the shoreline .
4. Sweet gale, leatherleaf, and buttonbush were common along much of the shoreline, but were on land and were not surveyed.
5. Observed two adult loons.